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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/147,325	02/17/1999	MATS LEIJON	9847-0001-6X	1549
22850	7590	03/25/2004		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER MULLINS, BURTON S	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/147,325

Applicant(s)

LEIJON ET AL.

Examiner

Burton S. Mullins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 77-158 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 77-158 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Suspension

1. Pursuant to the Board of Appeal's final decision regarding U.S. Application No. 08/973,019, suspension has been lifted. As set forth in the decision on petition requesting suspension, the instant application was granted a suspension pending the decision on appeal of the '019 application. On November 27, 2002, the Board affirmed the rejection of the '019 application and on August 27, 2003, the Board denied applicant's request for reconsideration, thus terminating prosecution of the '019 application. An action on the merits follows.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 77-84, 87-93, 103-112, 116-125, 127, 129-130, 136 and 153-158 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shildneck (US 3,014,139) in view of Elton et al. (US 4,853,565) and further in view of Wood (British Patent 1,135,242). Shildneck discloses the claimed invention except for having his cable winding comprised of at least a semiconducting layer around the conductor and having a support member positioned in contact with the winding. Shildneck discloses an improved continuous winding for an electromagnetic device such as a large turbine-driven generator, the winding employing an improved form of flexible insulated conductor for the laminated armature core of the dynamo electric machine.

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Elton teaches that it is known to have an electrical cable comprising an internal grading layer of semi-conducting pyrolyzed glass fiber layer in electrical contact with the cable conductor. Elton's electrical conductor comprises a solid insulation layer 106 between two semi-conducting pyrolyzed glass fibers 104, 110, the internal grading layer 104 surrounding the conductors of cable 100. In another embodiment, Elton teaches an electrical cable provided with an exterior layer of internal grading layer of semi-conducting pyrolyzed glass fiber layer in contact with an exterior cable insulator with a predetermined reference potential.

Wood teaches an improvement of packing means for conductors in stator slots of a dynamo-electric machines. The packing means is suitable for high power generators and is inflated with a pressurized fluid medium. Furthermore, the packing means exert pressure resiliently against the conductors, both radially and tangentially, consisting of inflatable tubes extending axially along each slot or connected to a common manifold. The use of inflatable packing means facilitate insertion and make it possible to achieve compressive resilience to compensate for any shrinkage of conductor isolation. Wood further teaches that the packing means can be either connected to a supply of pressurized fluid medium by means of a common manifold or if the fluid medium is elastically compressible, each packing means may be sealed at both ends after inflation. The elastically compressible medium can be made of elastomeric material such as silicone rubber.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a cable winding similar to the one taught by Elton et al. to the dynamo electric machine of Shildneck, the winding employing a semi-conducting layer

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since such a modification according to Elton et al. would prohibit the development of corona discharge and would equalize the electrical charge generated between two layers. Moreover, to have placed support members with the winding as taught by Wood to the winding arrangement as disclosed by Shildneck would have been obvious since such a modification according to Wood would restrict movement of the conductors in the stator slots.

Regarding claim 78, having the semiconducting layer the same coefficient of thermal expansion as that of the insulation layer 'would have been obvious to one having ordinary skill in the art since it was known that having the expansion rate between two layers the same would be desirable in order to prevent cracking of the insulation and reduce wearing between the two

With regard to claim 80, it is noted that in pages 2 and 4 of the specification, applicant readily admits that the concept of connecting generators directly to a power network without intermediate transformers is known and possible using superconducting rotors.

4. Claims 85 and 86 are rejected under 35 U.S.C. j 103(a) as being unpatentable over Shildneck in view of Elton et al. and Wood as applied 79 above, and further in view of Mazzorana (French Patents 2,594,271 and 2,556,146). Shildneck in view of Elton and Wood disclose the claimed invention except for varying the stator slot shape and cross-section. Wood as seen in figures 1-5 teaches various configurations in positioning his pressure elements.

Mazzorana as seen in figures 1-5 teaches various ways of forming slot shapes and cross-sections thereof. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the teachings of Mazzorana and to have modified the slot shapes and cross-section of Shildneck according to the design requirements. Furthermore, it has been held that a mere change in size or shape is generally recognized as being within the

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level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). In the instant application, applicant has not presented any argument nor provided teaching that the particular configuration selected is significant or is anything more than one of numerous configurations a person of ordinary skill in the art would find obvious.

5. Claims 94-102, 126,128, 131-135, 137-144, and 148-152 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shildneck in view of Elton et al. and Wood, as applied to claims 88 and 89 above, and further in view of Grant (US 5,325,008). Shildneck in view of Elton and Wood disclose the claimed invention except for having a corrugated sheet as a pressure member formed either in a longitudinal direction of the cable or surrounding the cable.

Grant teaches an installation and method of installing a constrained ripple spring assembly with a debondable adhesive. Grant teaches the ripple spring is adhesively secured to a flat surface, the spring mounted in the slot next to the winding and at a predetermined elevated temperature, the adhesive bonding is broken. The spring expands into a natural corrugated shape to apply a loading against the wedges and the winding.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the ripple spring assembly as taught by Grant as pressure members to the device of Shildneck in view of Elton and Wood since such a modification according to column 2, lines 19-22 of Grant would provide loading which tightens the arrangement of the windings, tiller strips and wedges in the slots.

6. Claims 113-115 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Shildneck in view of Elton et al. and Wood, as applied to claims 103 above, and further in view of Siemens (German Patent 468,827). Shildneck in view of Elton and Wood disclose the claimed invention except for the stator comprising slots having a profile with respective wide parts and narrow parts.

Siemens teaches that it is known to have a stator having cylindrical opening winding slots with decreasing radius in order to accommodate the winding conductors having varying diameters.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the stator slot arrangement as taught by Siemens and to have modified the stator slot arrangement of Shildneck, Elton and Wood since such a modification according to column 1, lines 25-29 of Siemens would have accommodated conductors having varying diameters and would have been appropriate for the different potentials occurring with respect to the low potential end of the windings.

7. Claims 145-147 are rejected under 35 U.S.C. j 103(a) as being unpatentable over Shildneck in view of Elton et al. and Wood, as applied to claim 136 above, and further in view of Madsen (US 3,932,779). Shildneck in view of Elton and Wood disclose the claimed invention except for a teaching of a method of inserting the support element as claimed.

Madsen teaches a turbo-generator comprised of rotor winding including a plurality of slots and wedges inserted, a plurality of relatively thin pressure tubes of a deformable material positioned in the slots. The pressure tubes are supplied with a thermosetting resin through feed tubes, the resin being supplied at a sufficient pressure and in a sufficient amount to produce an expansion of space within the tube. The feed tube is then subjected to heat in a localized area

forming a plug after which the supply of pressure to the pressure tube is removed. After the resin in the pressure tube has hardened, the feed tube is removed.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Shildneck, Elton and Wood and used the teachings of Madsen in forming the support element, since such a method according to column 1, lines 43-46 of Madsen is reliable and could be performed without the use of hydraulic means.

Response to Arguments

8. Applicant's arguments filed April 5, 2002 have been fully considered but they are not persuasive. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). With regard to Elton, the cable winding of Elton minimizes the possibilities of corona discharge, maintains resistivity value after impregnation, minimizes voids and maintains uniform and equal electric potential (c.2, lines 44-60).

Applicant argues that Elton's cable is rigid and not flexible and would not be suitable for use in Shildneck's machine. The examiner notes that Elton's windings 50 "initially extend axially and then bend circumferentially so as to provide a connection between one bar and a second circumferentially disposed bar in the stator core" (c.5, line 66-c.6, line 1). The

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manner of bending is shown in Fig.5. Thus, adequate “flexibility” is provided by such a bend. Also, Elton’s teaching at c.8, lines 3-9 that “the semi-conducting layer is a glass fiber which can be chopped, mixed with resin and molded, or blown on any complex shaped substrate [so that] the layer can be placed in intimate contact with substantially all of the exterior surface of the insulator or housing...” suggests that the semi-conducting layer can be “molded” or “blown” onto a cable without causing cable rigidity. Elton also refers to US 4,510,077 (Elton ‘077), incorporated by reference therein, for a detailed description of the characteristics of the cable material. Elton ‘077 teaches that a lubricant may be used in the material “to impart lubrication to and between the individual glass fibers, and as such permits the threads and cloths manufactured from these fibers to be subjected to mechanical stresses as incurred by bending, folding and twisting without breakage of the fibers” (c.4, lines 8-16). Thus, Elton ‘077 teaches how to make the semi-conductive material cable flexible. Shildneck’s cable is drawn through slots of the laminated stator core 2/14 (Figs.1-3), and the cable is flexible (c.2, lines 39-41).

Applicant argues that Shildneck is a high current/low voltage machine and would not work in a high voltage environment. However, the examiner notes that the specification defines “high voltage” as being 10kV or greater (p.1, lines 19-20). Shildneck was described in the declaration of Mr. Robert Fenton to operate at voltages from 10kV to 15 kV (p.19, paragraph 43) and hence can be defined by applicant’s own terms as a “high voltage” machine.

Information Disclosure Statement

9. The information disclosure statements submitted on September 29th 1999, March 10th 2000, March 21st 2000, May 9th 2002 and August 21st, 2002 have been considered by the examiner.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 571-272-2029. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 571-272-2034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
March 21, 2004